

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) ~~A standing seam~~ An assembly in which adjacent panels are supported by underlying support structure in overlapping edge relationship to form ~~an a~~ a standing seam assembly with a sidelap shear capacity resistant to sideslipping when subjected to applied forces, the assembly comprising:

- a first panel having a female sidelap portion comprising a female cavity;
- a second panel having male sidelap portion lockingly disposed in the female cavity of the first roof panel thereby forming a standing seam between the first and second panels, the first female ^{Sidelap} sidelap portion forming a first leg portion, the assembly with the sidelap shear capacity formed by downwardly forming the standing seam to create an acute angle with respect to the first leg portion; and
- means for increasing the sidelap shear capacity of the ~~first and second panels so that the first and second panels resist side slipping in the standing seam under applied forces~~ standing seam assembly.

2. (Currently Amended) The standing seam of assembly of claim 1 wherein the means for increasing sidelap shear capacity of the assembly comprises:

- at least one pair of backer plates, one against each of the female sidelap portion and the male sidelap portion of the first and second roof panels, respectively; and
- fastening means interconnecting the pair of backer plates for exerting a pressing force against and sandwich the female sidelap and male sidelap in the standing seam.

3. (Currently Amended) The standing seam assembly of claim 1 wherein the means for increasing sidelap shear capacity of the assembly comprises:

- a cinch plate disposed on one of the first and second roof panels; ~~and~~

a backer plate extending under the first and second roof panels; and
fastener means extending through the supporting roof panel for interconnecting
the cinch plate and the backer plate to sandwich the supporting roof panel
to the backer plate; ~~and~~
~~fastener means for attaching the backer plate to the underlying support structure.~~

4. (Currently Amended) A standing seam roof assembly in which adjacent roof
panels are supported by underlying support structure in overlapping edge relationship to
form a standing seam assembly with a sidelap shear capacity resistant to side slipping
when subjected to applied wind uplift forces, the standing seam roof assembly
comprising:

a first panel having a female sidelap portion which forms a male insertion cavity;
a second panel having a male sidelap portion receivingly lockingly disposed in
the male insertion cavity to form the standing seam assembly, the first
female sidelap portion forming a first leg portion, the standing seam
assembly with the sidelap shear capacity formed by downwardly forming
the standing seam to create an acute angle with respect to the first leg
portion; and
means for increasing the sidelap shear capacity of the standing seam ~~of the roof~~
~~panels so the first and second panels resist side slipping under the forces~~
~~of wind uplift~~ assembly.

5. (Currently Amended) The standing seam roof assembly of claim 4 wherein the
means for increasing sidelap shear capacity comprises:

a plurality of backer plates disposed against the female sidelap portion and the
male sidelap portion on opposing sides thereof; and
fastening means interconnecting pairs the backer plates and sandwiching the
female sidelap and male sidelap in pressing engagement to increase
resistance of the standing seam to slipping.

6. (Currently Amended) The standing seam roof assembly of claim 4 wherein the
means for increasing sidelap shear capacity comprises:

a backer plate extending under the roof panels; and

fastener means connecting the backer plate and the roof panel.

7. (Currently Amended) The standing seam assembly of Claim 1 wherein the assembly is a metal standing seam roof assembly.

8. (Currently Amended) A standing seam roof assembly in which adjacent roof panels are supported by underlying support structure in overlapping edge relationship to form standing seams between adjacent roof panels, the roof panels with a sidelap shear capacity resistant to sideslipping when subjected to uplift forces, the standing seam roof assembly comprising:

a first roof panel having female sidelap portion means forming a male insertion cavity;

a second roof panel having male sidelap portion means forming a male insertion portion lockingly engageable in the male insertion cavity, wherein the male sidelap portion is inserted into the male insertion cavity to form a standing seam assembly joining the first and second roof panels, the first female sidelap portion forming a first leg portion, the roof panels with the sidelap shear capacity formed by downwardly forming the standing seam assembly to create an acute angle with respect to the first leg portion; and means for increasing the sidelap shear capacity of the adjacent roof panels ~~so the that the panels resist side-slipping under shearing loading.~~

9. (Currently Amended) The standing seam roof assembly of claim 7 8 wherein the means for increasing sidelap shear capacity of the adjacent roof panels comprises:

at least one pair of backer plates disposed on opposing sides of the standing seam and against the female sidelap portion and the male sidelap portion of the first and second roof panels; and

fastening means interconnecting the backer plates for sandwiching the female sidelap and male sidelap in the standing seam to increase the frictional force there between.

10. (Currently Amended) The standing seam roof assembly of claim 7 8 wherein the means for increasing sidelap shear capacity of the adjacent roof panels comprises:

a cinch plate disposed on one of the first and second roof panels; ~~and~~
a backer plate extending under the first and second roof panels; and
fastener means extending through the supporting roof panel for interconnecting
the cinch plate and the backer plate to sandwich the supporting roof panel
to the backer plate; ~~and~~
~~fastener means for attaching the backer plate to the underlying support structure.~~

11. (Currently Amended) A roof having adjacently disposed panels supported by
underlying support structure in overlapping edge relationship to form a standing seams
seam assemblies each with a sidelap shear capacity between adjacent roof panels,
comprising:

each roof panel having a female sidelap portion forming a male insertion cavity;
each roof panel having male sidelap portion forming a male insertion portion
lockingly engageable in the male insertion cavity of the roof panel
adjacent thereto, wherein the male sidelap portion is inserted into the
male insertion cavity to form the standing seams seam assemblies joining
the adjacently disposed roof panels, each first female sidelap portions
forming a first leg portion, each standing seam assembly with the sidelap
shear capacity formed by downwardly forming the standing seam
assembly to create an acute angle with respect to the first leg portion; and
means for increasing the sidelap shear capacity of each roof panels ~~so that~~
~~the panels resist side slipping under shearing loading~~ standing seam
assembly.

12. (Currently Amended) The standing seam roof assembly of claim 10 wherein
the means for increasing sidelap shear capacity of each standing seam assembly
comprises:

a plurality of backer plates disposed on opposing sides of the each standing
~~seams~~ standing seam assembly and against the female sidelap portions
and the male sidelap portions of the panels; and
fastening means connecting pairs of the backer plates for sandwiching the
standing seams to exert friction increasing pressure on the standing
seams to resist slipping thereof when subjected to diaphragm loading.

13. (Currently Amended) The standing seam roof assembly of claim 10 wherein the means for increasing sidelap shear capacity of each standing seam assembly comprises:

a cinch plate supported on one the roof panels between the standing seams; ~~and~~
at least one backer member extending under the panels; and
fastener means extending through the supporting roof panels interconnecting the
cinch plates and the backer plates to sandwich the roof panels between
the cinch plates and the backer plate; ~~and~~
~~fastener means for attaching the backer plate to the underlying support structure.~~

14. (New) The standing seam of assembly of claim 1 wherein the means for increasing sidelap shear capacity of the assembly comprises a roof clip in pressing contact adjacent a first side of a tang member of the male sidelap portion of the second panel, the roof clip enclosing the distal end of the tang member while looping back on and pressingly engaging a second side ^{of} the tang member to enclose substantially all of the tang member.

15. (New) A method for forming a standing seam assembly with sidelap shear capacity by steps comprising:

providing a first and second adjacent roof panel;
interlocking a female sidelap portion of the adjacent first panel with a male portion of the second adjacent panel, the female sidelap portion having a first leg portion;
pre-crimping a hook portion of the female sidelap portion;
jointly forming a tang member of the male sidelap portion and a third leg of the female sidelap portion;
crimping together the tang member of the male sidelap portion and the third leg of the female sidelap portion to form a standing seam; and
downwardly forming the standing seam to create an acute angle with respect to the first leg portion of the female sidelap portion to form the standing seam assembly with sidelap shear capacity.

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16. (New) A combination comprising:
a standing seam assembly with a sidelap shear capacity provided by steps for
forming a standing seam assembly with sidelap shear capacity; and
means for increasing the sidelap shear capacity of the standing seam assembly.

Amendments to the Drawings:

Certain changes in the drawings are requested as follows:

Sheet 1: The attached sheet of the drawings includes changes to FIG. 30. The sheet, sheet 12/29, includes FIGS. 27 & 30, replaces the original sheet 12/29. FIG. 30 had misidentified standing seam element 25C as standing seam element 25B. Correction to FIG. 30 has been made by replacing sign number 25B with sign number 25C.

Attachments: Replacement sheet – 1

Annotated sheet - 1